



Year 2005

Air Quality Division

*ANNUAL AIR EMISSIONS INVENTORY QUESTIONNAIRE
For Facilities Permitted to Operate Dry Cleaning Equipment*

Instructions

The 2005 Annual Emissions Inventory Questionnaire includes 4 forms that are required to be completed and submitted to the Air Quality Division. Instructions for each form are included below. Upon completion, submit the forms along with the signature by the Responsible Official of the facility within 90 days of receipt of a letter from the Department.

FORM 1: Facility General Information

SECTION I thru III: Complete all fields as requested.

FORM 2: Equipment, & Process Data

Table 1: List equipment, source category, gallons of PERC purchased, ATO # and the emission control device if any.

Table 2: List the total monthly PERC purchased and the amount consumed.

FORM 3: Emissions Data

Input the total PERC used for the year 2005.

Based on the fuel used (Gasoline, Diesel, or Natural Gas/Liquid Propane), choose the appropriate table to input the boiler heat input rate (MM Btu/hr) and the total hours operated during the calendar year 2005. ***Once data is inputted, the formulas are set to complete the calculations. Therefore, do not move or change any of the fields or columns. If moved the results will be wrong calculations.*** A sample of the boiler calculations are provided on Form 2.

FORM 4: Summary & Certification

A summarization of all the emissions by each pollutant will be listed within this form. All reports submitted to the Department should be certified true and accurate by the Responsible Official of the facility. This person is the owner or operator of the facility. **If there is a change of the Responsible Official of the facility, please notify the Department with an additional letter stating the change.**

The completed questionnaire should be submitted to the following address:

**Arizona Department of Environmental Quality
Attention: Darlene Celaya, Emission Inventory Team
Air Quality Division, Compliance Section 3415A-3
1110 West Washington Street
Phoenix, AZ 85007**

If you have any question or have difficulty completing this form, please contact Darlene Celaya at (602) 771-7662.

SECTION I: *Plant Identification & Mailing Information*

Customer Name:			
Place Name:			Place ID:
Mailing Address:	City:	State:	Zip:
County:			
Phone:	Fax:		
Permit #/LTF #	General Permit:	Yes <input type="checkbox"/>	No <input type="checkbox"/>

SECTION II: *EI Contact*

EI Contact Name:	Title:
Telephone:	Fax:

SECTION III: *Confidential Request*

Pursuant to Arizona Revised Statutes §49-432 and §49-201, do you claim the Emissions Inventory data submittal confidential. If yes include which portions of the inventory are confidential along with a brief explanation:

Yes ☐
No ☐

Table 1: Equipment & Process Data

Equipment (check all equipment on-site)	<input type="checkbox"/> Only Dry-toDry <input type="checkbox"/> Only Transfer <input type="checkbox"/> Combination <input type="checkbox"/> Boiler
Source Category (check one)	<input type="checkbox"/> Small Area Source <input type="checkbox"/> Large Area Source
Gallons of Perchloroethylene used in 2005	
ATO#	
Emission Control Device (check one)	<input type="checkbox"/> Refrigerated Condenser <input type="checkbox"/> Carbon Absorber <input type="checkbox"/> None

Table 2: Yearly Perchloroethylene Purchase & Consumed

	Month	Perchloroethylene Purchased (Gallons)	Perchloroethylene Consumed (Gallons)
Perchloroethylene purchase & consumed for the year 2005	January		
	February		
	March		
	April		
	May		
	June		
	July		
	August		
	September		
	October		
	November		
	December		
Totals			

Sample Calculation: Emissions = $\frac{\text{Maximum Heat Input Rate (MM Btu per hr)} \times \text{Hours of Operation (hrs)} \times \text{Emission Factor (pounds per MM Btu per hr)}}{2000 \text{ pounds per ton}}$

For a Boiler with a maximum heat input rate of 20MM Btu per hr and using Natural Gas fuel and operated for 1500 hours during the year 2005, the emissions of Nitrogen Oxides (Nox) will be as follows:

$$\text{Emissions} = \frac{20 \text{ MM Btu per hr} \times 1500 \text{ hours} \times 0.0952 \text{ pounds per MM Btu per hr}}{2000 \text{ pounds per ton}} = 1.428 \text{ tons per year}$$

Dry Cleaning Process			
Pollutants	(1) Total PERC. Consumed gallons/year	(2) Emission Factor pounds/gallon	Emissions = (1)x(2)/2000 tons/year
PERC		13.5	

Conversion Factors - 1 Therm = 100,000 BTUs. 1 MMBTU = 1,000,000 BTUs. 1HP-hr = 2546.15 BTUs

	FUEL - BUTANE				FUEL - PROPANE			
	Boiler #1		Boiler #2		Boiler #1		Boiler #2	
	Capacity (MMBtu- (hours/year) (2)		Capacity (hours/year) (5)		Capacity	Hours	(HP-hr)	(hours/year) (5)
Pollutants	(3) pounds/MMBtu	(1)x(2)x(3)/2000 tons/year	Factor (6) Btu	(4)x(5)x(6)/2000 tons/year	(3) pounds/MMBtu	(1)x(2)x(3)/2000 tons/year	Factor (6) u	(4)x(5)x(6)/2000 tons/year
PM	0.0059		0.0059		0.0066		0.0066	
PM10	0.0059		0.0059		0.0066		0.0066	
NOx	0.2059		0.2059		0.2077		0.2077	
CO	0.0353		0.0353		0.0350		0.0350	
VOC	0.0041		0.0041		0.0033		0.0033	
Methane	0.0020		0.0020		0.0022		0.0022	

FORM 3: EMISSIONS CALCULATIONS

YEAR 2005

	FUEL - NATURAL GAS				FUEL - DIESEL			
	Boiler #1		Boiler #2		Boiler #1		Boiler #2	
	Max. Rated Capacity (MMBtu-hr) (1)	Operational Hours (hours/year) (2)	Max. Capacity (HP-hr) (4)	Operational Hours (hours/year) (5)	Max. Rated Capacity (MMBtu-hr) (1)	Operational Hours (hours/year) (2)	Max. Capacity (HP-hr) (4)	Operational Hours (hours/year) (5)
Pollutants	Emission Factor (3) pounds/MMBtu	Emissions = (1)x(2)x(3)/2000 tons/year	Emission Factor (6) Btu	Emissions = (4)x(5)x(6)/2000 tons/year	Emission Factor (3) pounds/MMBtu	Emissions = (1)x(2)x(3)/2000 tons/year	Emission Factor (6) u	Emissions = (4)x(5)x(6)/2000 tons/year
NOx	0.0980		0.0980		0.1460		0.1460	
CO	0.0824		0.0824		0.0365		0.0365	
PM10	0.0075		0.0075		1.56E-06		1.56E-06	
PM	0.0075		0.0075		0.0240		0.0240	
SOx	0.0006		0.0006		0.8290		0.8290	
VOCs	0.0054		0.0054		0.0025		0.0025	
Acenaphthene	1.76E-09		1.76E-09		2.65E-07		2.65E-07	
Acenaphthylene	1.76E-09		1.76E-09		1.85E-09		1.85E-09	
Anthracene	2.35E-09		2.35E-09		8.91E-09		8.91E-09	
Arsenic	1.76E-09		1.76E-09		2.93E-08		2.93E-08	
Benz(a)anthracene	1.18E-09		1.18E-09		1.65E-08		1.65E-08	
Benzene	1.76E-09		1.76E-09		-		-	
Benzo(b)fluoranthene	1.18E-09		1.18E-09		-		-	
Benzo(b,k)fluoranthene	1.76E-09		1.76E-09		1.74E-08		1.74E-08	
Benzo(g,h,i)perylene	2.06E-03		2.06E-03		1.22E-08		1.22E-08	
Benzo(k)fluoranthene	1.76E-09		1.76E-09		-		-	
Beryllium	-		-		4.64E-07		4.64E-07	
Butane	1.18E-09		1.18E-09		-		-	
Cadmium	1.18E-06		1.18E-06		3.53E-08		3.53E-08	
Chromium	3.04E-03		3.04E-03		3.26E-08		3.26E-08	
Chrysene	2.94E-09		2.94E-09		2.41E-04		2.41E-04	
Cobalt	2.75E-09		2.75E-09		-		-	
Dimethylbenz(a)anthracene	1.57E-08		1.57E-08		-		-	
Dibenzo(a,h)anthracene	1.76E-03		1.76E-03		-		-	
Dichlorobenzene	1.76E-09		1.76E-09		-		-	
Ethane	5.98E-07		5.98E-07		-		-	
Ethylbenzene	2.55E-03		2.55E-03		-		-	
Fluoranthene	1.67E-08		1.67E-08		7.66E-08		7.66E-08	
Fluorene	1.57E-03		1.57E-03		-		-	
Formaldehyde	4.90E-09		4.90E-09		3.10E-08		3.10E-08	
Hexane	3.33E-06		3.33E-06		4.53E-05		4.53E-05	
Indeno(1,2,3-cd)pyrene	1.96E-07		1.96E-07		4.00E+06		4.00E+06	
Lead	4.31E-06		4.31E-06		-		-	
2-Methylnaphthalene	2.35E-08		2.35E-08		-		-	
3-Methylchloranthrene	1.76E-09		1.76E-09		-		-	
Manganese	1.18E-08		1.18E-08		3.00E+06		3.00E+06	
Mercury	1.08E-06		1.08E-06		3.00E+06		3.00E+06	
Methane	1.37E-06		1.37E-06		3.00E+06		3.00E+06	
Molybdenum	8.24E-08		8.24E-08		-		-	
Naphthalene	8.33E-07		8.33E-07		6.00E+06		6.00E+06	
Naphthalene	3.73E-07		3.73E-07		6.00E+06		6.00E+06	
O-Xylene	2.06E-06		2.06E-06		3.00E+06		3.00E+06	
Phenanthrene	-		-		1.32E-02		1.32E-02	
Pyrene	-		-		9.00E+06		9.00E+06	
Selenium	-		-		8.25E-06		8.25E-06	
1,1,1-Trichloroethane	2.25E-03		2.25E-03		1.58E-03		1.58E-03	
Toluene	-		-		2.26E-11		2.26E-11	

Total all the emissions for each pollutant and enter in the table below.

Pollutant	Tonnage (tons per year)
Particulate Matter (PM)	
Particulate Matter Less Than 10 Microns (PM10)	
Nitrogen Oxides (NOx)	
Sulfur Oxides (SOx)	
Volatile Organic Compounds (VOC)	
Carbon Monoxide (CO)	
Perchloroethylene (PERC)	
Hazard Air Pollutants - excluding PERC (HAPs)	

Certification of Truth & Accuracy

I certify that I have knowledge of the facts set forth in this questionnaire, and that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Arizona Department of Environmental Quality as public record.

Signature of Responsible Official:

Date:

Print Name:

Title: